

What is Claimed:

1           1. An electrical protector device comprising a fixed electrode that has a fixed  
2     contact mounted thereon, a movable electrode that has a movable contact mounted  
3     thereon, said movable contact positioned to be able to make and to break contact with  
4     said fixed contact, a heat responsive bimetal member positioned directly adjacent said  
5     movable electrode which moves from a first position to a second position upon being  
6     heated to a prescribed temperature for causing either the engagement or the  
7     disengagement of said fixed contact and said movable contact, an insulator member  
8     which electrically insulates both said movable electrode and said bimetal member from  
9     said fixed electrode and an attachment member capable of being inserted into part of  
10    said insulator to securely fix both said movable electrode and said bimetal member on  
11    said insulator at an attachment point thereby allowing for essentially no relative  
12    movement between the movable electrode and the bimetal member at said attachment  
13    point.

1           2. A protector device as set forth in claim 1 in which said fixed electrode has an  
2     opening therein for receiving said attachment member and a deformed electricity  
3     carrying portion having sufficient size to carry a prescribed electric current without  
4     overheating while maintaining a prescribed insulation distance from said attachment  
5     member to prevent electrical shorting between the two.

1           3. A protector device as set forth in claim 2 in which said deformed electricity  
2     carrying portion has a curved wall shape with a central opening.

1           4. A protector device as set forth in claim 2 in which said deformed electricity  
2     carrying portion has a generally cylindrical shape with a central opening.

1           5. A protector device as set forth in claim 2 in which said fixed electrode and  
2     insulator are formed integrally together with said insulator having a through hole

3 adapted for receipt of said attachment member with said deformed electricity carrying  
4 portion positioned to carry electric current around said through hole.

1 6. A protector as set forth in claim 1 further including a holding member, said  
2 holding member aligned with at least a portion of said insulator member to sandwich  
3 said movable electrode and said bimetal member between them.

1 7. A protector device as set forth in claim 1 wherein said attachment member is  
2 a rivet.

1 8. A protector device as set forth in claim 7 further including a holding member,  
2 said holding member, movable electrode, bimetal member and insulator all having an  
3 aligned through hole for receipt of said rivet to securely fix them together at said  
4 attachment point.

1 9. A protector device as set forth in claim 8 in which said rivet has such a length  
2 as to not protrude from either the insulator at one end or the holding member on the  
3 other end in an assembled device.

1 10. A protector as set forth in claim 1 further including a casing member to  
2 fixedly house said fixed electrode, said movable electrode, said bimetal member, said  
3 insulator member and said attachment member.

1 11. An electrical protector device especially useful for protecting an electrical  
2 motor comprising a casing for housing a protector assembly, said protector assembly  
3 comprising a fixed electrode that has a fixed contact mounted thereon, a movable  
4 electrode that has a movable contact mounted thereon, said movable contact positioned  
5 to be able to make and to break contact with said fixed contact, a heat responsive  
6 bimetal member positioned directly adjacent said movable electrode which moves from  
7 a first position to a second position upon being heated to a prescribed temperature for  
8 causing either the engagement or the disengagement of said fixed contact and said

9 movable contact, an insulator member which electrically insulates both said movable  
10 electrode and said bimetal member from said fixed electrode, a holding member aligned  
11 with at least a portion of said insulator member to sandwich said movable electrode and  
12 said bimetal member between them and an attachment member capable of being  
13 inserted into part of said insulator and said holding member to securely fix both said  
14 movable electrode and said bimetal member on said insulator at an attachment point  
15 thereby allowing for essentially no relative movement between the movable electrode  
16 and the bimetal member at said attachment point.

1 12. A protector device as set forth in claim 11 in which said fixed electrode has  
2 an opening therein for receiving said attachment member and a deformed electricity  
3 carrying portion having sufficient size to carry a prescribed electric current without  
4 overheating while maintaining a prescribed insulation distance from said attachment  
5 member to prevent electrical shorting between the two.

1 13. A protector device as set forth in claim 12 in which said deformed electricity  
2 carrying portion has a curved wall shape with a central opening.

1 14. A protector device as set forth in claim 13 in which said deformed electricity  
2 carrying portion has a generally cylindrical shape with a central opening.

1 15. A protector device as set forth in claim 12 in which said fixed electrode and  
2 insulator are formed integrally together with said insulator having a through hole  
3 adapted for receipt of said attachment member with said deformed electricity carrying  
4 portion positioned to carry electric current around said through hole.

1 16. A protector device as set forth in claim 11 wherein said attachment member  
2 is a rivet.

1 17. A protector according to claim 16 wherein said rivet has a hollow tubular  
2 body open at one end.